

## CLAIMS

1. System for dynamic provision of service conveying packets to groups of end-users, each group of end-users is coupled to the system via a bandwidth limited medium, the system comprising:

a router, operative to receive service conveying packets and to provide to each group of end-users group associated service conveying packets;

a session manager, coupled to the router, said session manager providing routing instructions to said router, for dynamically selecting group of associated service conveying packets out of the received service conveying packets;

wherein at least some of the service conveying packets comprising media signals.

2. The system according to claim 1 wherein the aggregate bandwidth of the received service conveying packets exceeds the bandwidth of the bandwidth limited medium.

3. The system according to claim 1, further comprises at least one media degradation unit, for compressing service conveying packets comprising of media signals.

4. The system according to claim 1 wherein the service is selected from a group consisting of:

digital television channel;

analog television channel;

video on demand;

internet television;

audio on demand;

radio channel;

telephony;

data; and  
internet.

5. The system according to claim 1 wherein at least some of the media signals are MPEG compliant.

6. The system according to claim 1 wherein the selection of service conveying packets is responsive to at least one selection parameter selected from the group consisting of:

- predefined selection parameter;
- selection parameter reflecting the type of a service;
- selection parameter reflecting a status of at least one end-user;
- selection parameter reflecting a previous status of at least one end-user;
- predefined priority parameter;
- selection parameter reflecting requests to receive a service;
- selection parameters reflecting a current provision of a service to end-users;
- selection parameters reflecting previous provisions of a requested service;
- selection parameters reflecting a relationship between at least two services; and
- selection parameters reflecting at least one end-user behavior pattern.

7. The system according to claim 1, wherein the selection is responsive to additional information selected from the group consisting of:

- bandwidth utilization information;
- bandwidth network management information;
- policy information;
- general policy rules;
- network policy rules;
- shared area session policy rules; and
- network reconstruction information.

8. The system according to claim 1 wherein the selection is responsive to service requests generated by end-users.

9. The system according to claim 1 wherein the service request is generated in response to a display of a service request interface selected from the group consisting of:

- an electronic service guide;
- a surfing channel that cycles through available channels;
- a surfing mosaic displaying accessible services; and
- a menu of accessible services.

10. The system according to claim 1 further comprising network transmitters for transmitting to each group of end-users group associated service conveying packets over the bandwidth limited media.

11. The system according to claim 10, further comprising a dynamic network restructuring unit, coupled to the network transmitters, for providing channel managing commands to each said network transmitters, receiving group associated service conveying packets from said router.

12. The system according to claim 1, wherein said session manager receives a plurality of session requests, for executing a session through the system, the session manager either allows or denies each said session requests, said session manager provides resource allocation parameters for each said allowed sessions.

13. The system according to claim 1, further comprising a plurality of shared area managers, each shared area manager being associated with a single group of end-users, each shared area manager is operative to select group associated service conveying packet to be provided to the associated group of end-users.

14. The system according to claim 1 wherein some of the service conveying packets are non-addressable packets, wherein some service conveying packets are addressable packets, wherein the router comprising:

- a plurality of input ports, including at least one non-addressable stream input port;

- a plurality of non-addressable stream output ports;

- a multiple port switch, connected between said non-addressable stream input ports and said non-addressable stream output ports;

said multiple port switch directing a non-addressable service conveying packet, received from a selected one of said at least one non-addressable stream input ports, to at least a selected one of said at least one non-addressable stream output ports,

said multiple port switch selecting said selected non-addressable stream output port according to the type and identity of said selected non-addressable stream input port and the identity information embedded in said non-addressable service conveying packet.

15. The system according to claim 14, further comprising at least one addressable stream communication port, connected to said multiple port switch, said multiple port switch directing an addressable service conveying packet, received from a selected one of said at least one addressable stream communication ports, to at least a selected one of said at least one non-addressable stream output ports.

16. The system according to claim 14, wherein the selected non-addressable stream output port encapsulating an addressable service conveying packet in a non-addressable stream packet, when the addressable packet is received from one of said at least one addressable stream input ports.

17. The system according to claim 14, wherein MPEG transport packets are encapsulated into communication packets respective of the communication protocol of said multiple port switch.

18. The system according to claim 14, wherein said at least one non-addressable stream input port comprises a multiple program transport interface and wherein said at least one non-addressable stream output port comprises a multiple program transport interface.

19. The system according to claim 14, further comprising a plurality of stream processors, each said stream processor being connected between said multiple port switch and a respective one of said non-addressable stream output ports.

20. The system according to claim 14, wherein each said stream processors is operative to at least perform a procedure selected from the list consisting of: multiplexing; re-multiplexing; rate adaptation; PID re-mapping; PCR re-stamping; and updating system information embedded in transport streams.

21. The system for dynamic provision of service conveying packets according to claim 1 operative to receive set of group associated service conveying packets from a high-tier system, the high-tier system comprising: a router, operative to receive service conveying packets and to provide the set of group associated service conveying packets to the system for dynamic provision of service conveying packets; a session manager, coupled to the router, said session manager providing routing instructions to said router, for dynamically selecting set of group associated service conveying packets out of the received service conveying packets; wherein at least some of the service conveying packets comprising media signals.

22. The system according to claim 21 wherein the aggregate bandwidth of the received service conveying packets received by the top tier system exceeds the aggregate bandwidth of each set of group associated service conveying packet.

23. A method for dynamic provision of service conveying packets to groups of end-users, each group of end-users is coupled to the system via a bandwidth limited medium, at least some of the service conveying packets being media service conveying packets, the method comprising the steps of:

receiving service conveying packets; whereas the aggregate bandwidth of the received service conveying packets at each given time, exceeds the bandwidth of the limited bandwidth media; and

dynamically selecting group associated service conveying packets out of the received service conveying packets to be provided to the associated group of end-users.

24. The method according to claim 23 wherein the selection is responsive to requests from end-users to receive requested service conveying packets.

25. The method according to claim 24 wherein the service request is generated in response to a display of a service request interface selected from the group consisting of:

- an electronic service guide;
- a surfing channel that cycles through available channels;
- a surfing mosaic displaying accessible services; and
- a menu of accessible services.

26. The method according to claim 23 wherein the step of selecting comprising selectively compressing media service conveying packets such that the aggregate bandwidth of group associated service conveying packets does not exceed the bandwidth of the limited bandwidth media.

27. The method according to claim 23 wherein the service is selected from a group consisting of:

- digital television channel;
- analog television channel;
- video on demand;
- internet television;
- audio on demand;
- radio channel;
- telephony;
- data; and
- internet.

28. The method according to claim 23 wherein at least some of the media service conveying packets are MPEG compliant.

29. The method according to claim 23 wherein the dynamically selection is responsive to at least one selection parameter selected from the group consisting of:

- predefined selection parameter;
- selection parameter reflecting the type of a service;
- selection parameter reflecting a status of at least one end-user;
- selection parameter reflecting a previous status of at least one end-user;
- predefined priority parameter;
- selection parameter reflecting requests to receive a service;
- selection parameters reflecting a current provision of a service to end-users;
- selection parameters reflecting previous provisions of a requested service;
- selection parameters reflecting a relationship between at least two services; and
- selection parameters reflecting at least one end-user behavior pattern.

30. The method according to claim 23, wherein the selection is responsive to additional information selected from the group consisting of:

- bandwidth utilization information;
- bandwidth network management information;
- policy information;
- general policy rules;
- network policy rules;
- shared area session policy rules; and
- network reconstruction information.

31. The method according to claim 23 wherein the step of selecting includes selecting session requests, for executing a session in which group associated service conveying packets are to be provided to an associated group of end-users.

32. The method of step 31 wherein the step of selecting is preceded by a step of allocating system resources for providing the group associated service conveying packets.

33. A method for dynamic provision of service conveying packets to groups of end-users, each group of end-users is coupled to the system via a bandwidth limited medium, at least some of the service conveying packets being media service conveying packets, the method comprising the steps of:

- receiving non-addressable service conveying packets from an input port selected from at least one non-addressable stream input port;

- dynamically selecting a group associated service conveying packets out of the received service conveying packets to be provided to at least one of a plurality of non-addressable stream output ports; whereas at least one non-addressable stream output port is coupled to at least one group of end-users;
- and

directing said non-addressable service conveying packets packet to said selected non-addressable stream output port.

34. The method according to claim 33 wherein the selection responsive to the type and identity of said selected input port and the identity information embedded in said received packet.

35. The method according to claim 33, wherein said input port is further selected from at least one addressable stream input port.

36. The method according to claim 33, further comprising the step of prioritizing the directing of the session associate with said received packet.

37. The method according to claim 33, further comprising the step of encapsulating said packet in a non-addressable stream packet, when said packet is received from one of said at least one addressable stream input ports.

38. The method according to claim 33, further comprising the step of encapsulating said packet in a addressable stream packet, when said packet is received from one of said at least one non-addressable stream input ports.

39. The method according to claim 33, further comprising the step of stream processing said packet.

40. The method according to claim 39, wherein said step of stream processing said packet includes at least a procedure selected from the list consisting of:

- multiplexing;
- re-multiplexing;
- rate adaptation;
- PID re-mapping;

PCR re-stamping; and  
updating system information embedded in transport streams.

41. The method according to claim 33 wherein the selection is responsive to requests from end-users to receive requested service conveying packets.

42. The method according to claim 41 wherein the service request is generated in response to a display of a service request interface selected from the group consisting of:

- an electronic service guide;
- a surfing channel that cycles through available channels;
- a surfing mosaic displaying accessible services; and
- a menu of accessible services.

43. The method according to claim 33 wherein the step of selecting comprising selectively compressing media service conveying packets such that the aggregate bandwidth of group associated service conveying packets does not exceed the bandwidth of the limited bandwidth media.

44. The method according to claim 33 wherein the service is selected from a group consisting of:

- digital television channel;
- analog television channel;
- video on demand;
- internet television;
- audio on demand;
- radio channel;
- telephony;
- data; and
- internet.

45. The method according to claim 33 wherein at least some of the media service conveying packets are MPEG compliant.

46. The method according to claim 33 wherein the dynamically selection is responsive to at least one selection parameter selected from the group consisting of:

- predefined selection parameter;
- selection parameter reflecting the type of a service;
- selection parameter reflecting a status of at least one end-user;
- selection parameter reflecting a previous status of at least one end-user;
- predefined priority parameter;
- selection parameter reflecting requests to receive a service;
- selection parameters reflecting a current provision of a service to end-users;
- selection parameters reflecting previous provisions of a requested service;
- selection parameters reflecting a relationship between at least two services; and
- selection parameters reflecting at least one end-user behavior pattern.

47. The method according to claim 33, wherein the selection is further responsive to additional information selected from the group consisting of:

- bandwidth utilization information;
- bandwidth network management information;
- policy information;
- general policy rules;
- network policy rules;
- shared area session policy rules; and
- network reconstruction information.

48. The method according to claim 33 wherein the step of selecting including selecting session requests, for executing a session in which group

associated service conveying packets are to be provided to an associated group of end-users.

49. The method according to claim 48 wherein the step of selecting is preceded by a step of allocating system resources for providing the group associated service conveying packets.